

Investigation of linear...

89133  
S/108/61/016/002/006/011  
B107/B212

All other sums can be derived from them by applying rules which are given in A. M. Zayezdnyy (Radiotekhnika, 1958, Vol. 8, No. 4). Present paper describes a number of calculation examples: 1) Systems of first order, where particular solutions of Eqs. 1), 2), 3) are valid:

$$\frac{dy}{dx} + a_0 y = \frac{a_1}{2} + \sum_{n=1}^{\infty} (a_n \cos nx + \beta_n \sin nx)$$

$$y = \frac{a_1}{2a_0} + a_0 z(x) - z'(x)$$

$$z(x) = \sum_{n=1}^{\infty} \frac{a_n}{n^2 + a_0^2} \cos nx + \sum_{n=1}^{\infty} \frac{\beta_n}{n^2 + a_0^2} \sin nx$$

1. example: Effect of a voltage having a quadratic wave form or a square pulse train which is acting on an RC or RL circuit (Fig. 1). The following expression is derived for an RC circuit:

Card 4/13

Investigation of linear...

S/108/61/016/002/006/001  
B107/B212

$$\begin{aligned} i &= \frac{E}{R} \left( 1 + \tanh \frac{\alpha T}{4} \right) e^{-\alpha t} & (0 < t < \frac{T}{2}) \\ i &= -\frac{E}{R} \left( 1 + \tanh \frac{\alpha T}{4} \right) e^{-\alpha (t - \frac{T}{2})} & (\frac{T}{2} < t < T) \end{aligned} \quad (a)$$

and

$$\begin{aligned} i &= \frac{E}{R} \left[ 1 - \left( 1 + \tanh \frac{\alpha T}{4} \right) e^{-\alpha t} \right] & (0 < t < \frac{T}{2}) \\ i &= -\frac{E}{R} \left[ 1 - \left( 1 + \tanh \frac{\alpha T}{4} \right) e^{-\alpha (t - \frac{T}{2})} \right] & (\frac{T}{2} < t < T) \end{aligned} \quad (b)$$

for an RL circuit, where  $\alpha = \frac{1}{RC}$  respectively  $\alpha = \frac{R}{L}$ . If a constant dc voltage  $E$  is applied to an RC circuit at a time  $t = 0$ , then the transient process is calculated to be

$$i = \frac{E}{2R} \left( 1 + \tanh \frac{\alpha T}{4} \right) e^{-\alpha t} \quad (c)$$

Card 5/13

87133

Investigation of linear...

S/108/61/016/002/006/011  
B107/B212

and if  $\alpha T \gg 1$  (pulse period is much greater than the time constant of the RC circuit) then the well known expression

$i = \frac{E}{R} \exp(-\alpha t)$  is obtained. Analogous equations for an RL circuit are:

$$i = \frac{E}{2R} \left[ 2 - \left( 1 + \ln \frac{\alpha T}{4} \right) e^{-\alpha t} \right] \quad (d)$$

and  $i = \frac{E}{R} [1 - \exp(-\alpha t)]$ . 2. example: Effect of a saw-tooth voltage on an RC or RL circuit. The following expressions have been derived: For an RC circuit

$$i(t) = \frac{E}{R} \left( \frac{1}{\alpha T} - \frac{1}{1 - e^{-\alpha T}} e^{-\alpha t} \right) \quad (0 < t < T). \quad (e)$$

and for an RL circuit

$$i(t) = \frac{E}{R} \left( \frac{t}{T} - \frac{1}{\alpha T} + \frac{1}{1 - e^{-\alpha T}} e^{-\alpha t} \right) \quad (0 < t < T). \quad (f)$$

3. example: Effect of a square-pulse train with a pulse ratio ( $> 2$ )

Card 6/13

89133

Investigation of linear...

S/108/61/016/002/006/011

B107/B212

which is applied to an RL circuit.

$$\begin{aligned}
 i(t) &= \frac{E}{R} \left[ 1 - \frac{\operatorname{sh} a \left( \frac{T}{2} - \tau \right)}{\operatorname{sh} \frac{aT}{2}} e^{-at} \right] \quad (0 < t < \tau), \\
 i(t) &= \frac{E}{R} \frac{\operatorname{sh} a\tau}{\operatorname{sh} \frac{aT}{2}} e^{\frac{aT}{2}} e^{-at} \quad (\tau < t < T - \tau), \\
 i(t) &= \frac{E}{R} \left[ 1 - \frac{\operatorname{sh} a \left( \frac{T}{2} - \tau \right)}{\operatorname{sh} \frac{aT}{2}} e^{aT} e^{-at} \right] \quad (T - \tau < t < T).
 \end{aligned} \tag{8}$$

has been derived for this circuit. 2. Systems of second order: Here, the particular solutions of Eqs. (1), (2), and (3) hold:

$$\left. \begin{aligned}
 \frac{d^2 y}{dx^2} + a_1 \frac{dy}{dx} + a_0 y &= \frac{a_0}{2} + \sum_{n=1}^{\infty} (a_n \cos nx + \beta_n \sin nx) \\
 y &= \frac{a_0}{2a_0} + a_0 z(x) - a_1 z'(x) + z''(x)
 \end{aligned} \right\} \tag{10}$$

Card 7/13

$$z(x) = \sum_{n=1}^{\infty} \frac{a_n \cos nx + \beta_n \sin nx}{(n^2 - a_0)^2 + a_1^2 n^2}$$

89133

Investigation of linear...

S/108/61/016/002/006/C1  
B107/B212

4. example: A periodic voltage having a parabolic wave form is applied to an LCR circuit. The following equation has been derived:

$$i(t) = \frac{E}{\sqrt{s^2 - \omega_0^2}} \left( \frac{e^{p_1 t}}{1 + e^{p_1 \frac{T}{2}}} - \frac{e^{p_2 t}}{1 + e^{p_2 \frac{T}{2}}} \right) \quad (0 < t < \frac{T}{2}) \quad (h);$$

for the second half of the period the solution is represented by  $i(t) = -i(t - \frac{T}{2})$ , where  $2\alpha = R/L$ ;  $\omega_0^2 = 1/(LC)$  and  $p_{1,2} = -\alpha \pm \sqrt{\alpha^2 - \omega_0^2}$ .

5. example: A sinusoidal pulse train is applied to an LCR circuit

$$i(t) = \frac{E}{\sqrt{R^2 + \left(\Omega L - \frac{1}{\Omega C}\right)^2}} \sin(\Omega t - \varphi) + \frac{E}{L(p_1 - p_2)} \left[ \frac{p_1 \Omega}{(\rho_1^2 + \Omega^2)(1 - e^{p_1 \frac{T}{2}})} - \frac{p_2 \Omega}{(\rho_2^2 + \Omega^2)(1 - e^{p_2 \frac{T}{2}})} \right] \quad (1)$$

$$(0 < t < \frac{T}{2}).$$

Card 8/13

89133

Investigation of linear...

S/108/61/016/002/006/011  
B107/B212

and for the second half of the period

$$i(t) = \frac{E}{\sqrt{R^2 + \left(\Omega L - \frac{1}{\Omega C}\right)^2}} \sin(\Omega t - \varphi) + \frac{E}{L(p_1 - p_2)} \left[ \frac{p_1 \Omega e^{-p_1 \frac{T}{2}}}{(p_1^2 + \Omega^2)(1 - e^{p_1 \frac{T}{2}})} e^{p_1 t} - \frac{p_2 \Omega e^{-p_2 \frac{T}{2}}}{(p_2^2 + \Omega^2)(1 - e^{p_2 \frac{T}{2}})} e^{p_2 t} \right] \quad (k)$$

$$\left( \frac{T}{2} < t < T \right)$$

where

$$\operatorname{tg} \varphi = \frac{\Omega L - \frac{1}{\Omega C}}{R} \quad (1)$$

if  $\alpha > \omega_0$  these are final expressions, if  $\alpha < \omega_0$  then

Card 9/13

89133

Investigation of linear...

S/108/61/016/002/006/011  
B107/B212

$$i(t) = \frac{E}{\sqrt{R^2 + \left(\Omega L - \frac{1}{\Omega C}\right)^2}} \left\{ \sin(\Omega t - \varphi) - \right.$$

$$- e^{-\alpha t} \left( \frac{\alpha}{\omega} \sin \varphi + \frac{\omega_0}{\Omega} \cos \varphi \right) \left[ \sin \omega t - e^{-\frac{T}{2}} \sin \omega \left( t - \frac{T}{2} \right) \right] -$$

$$1 + e^{-T} - 2e^{-\frac{T}{2}} \cos \omega \frac{T}{2}$$

(m).

$$- \sin \varphi \left[ \cos \omega t - e^{-\frac{T}{2}} \cos \omega \left( t - \frac{T}{2} \right) \right]$$

$$\left( 0 < t < \frac{T}{2} \right)$$

For a circuit with a very high Q factor it can be assumed  $\omega \approx \omega_0$  and  $\alpha \ll \omega$ , here, the following expression is obtained:

Card 10/13

89133

Investigation of linear...

S/108/61/016/002/006/011  
B107/B212

$$i(t) = \frac{E}{\sqrt{R^2 + \left(\Omega L - \frac{1}{\Omega C}\right)^2}} \left\{ \sin(\Omega t - \varphi) - \frac{\omega_0 \cos \varphi}{\Omega} \left[ \sin \omega t - e^{-\frac{t}{T}} \sin \omega \left( t - \frac{T}{2} \right) \right] - \sin \varphi \left[ \cos \omega t - e^{-\frac{t}{T}} \cos \omega \left( t - \frac{T}{2} \right) \right] \right\} \quad (n).$$

$$1 + e^{-\frac{t}{T}} - 2e^{-\frac{t}{T}} \cos \omega \frac{T}{2}$$

$$(0 < t < \frac{T}{2})$$

For a resonant tuned circuit  $\omega_0 = \Omega$ , i.e.,

Card 11/13



Investigation of linear ... 89133  
S/108/61/016/002/006/011

$$I(t) = \frac{E}{R} \left( 1 - \frac{e^{-\alpha t}}{1 + e^{-\alpha \frac{T}{2}}} \right) \sin \Omega t \quad \left( 0 < t < \frac{T}{2} \right).$$

$$I(t) = \frac{E}{R} \left[ 1 + \frac{e^{-\alpha \left( t - \frac{T}{2} \right)}}{1 + e^{-\alpha \frac{T}{2}}} \right] \sin \Omega t \quad \left( \frac{T}{2} < t < T \right). \quad (o).$$

Assuming  $\alpha \frac{T}{2} = \frac{\pi}{2Q} \ll 1$  and  $e^{-\alpha \frac{T}{2}} \approx 1$ ,

$$I(t) = \frac{E}{R} \left( 1 - \frac{1}{2} e^{-\alpha t} \right) \sin \Omega t \quad \left( 0 < t < \frac{T}{2} \right),$$

$$I(t) = \frac{E}{R} \left[ 1 + \frac{1}{2} e^{-\alpha \left( t - \frac{T}{2} \right)} \right] \sin \Omega t \quad \left( \frac{T}{2} < t < T \right) \quad (p)$$

is obtained finally. There are 4 figures and 13 references: 12 Soviet-bloc and 1 non-Soviet-bloc.

SUBMITTED: November 16, 1959 (initially)  
May 11, 1960 (after revision)

Card 12/13

FERSMAN, B.A.; PAK, I.N.; ZAYEZDNIY, A.M., red.; GAL'CHINSKAYA, V.V.,  
tekhn. red.

[Tables and formulas of sums of trigonometric series of the type

$$\sum_{n=1}^{\infty} \frac{I_n(r)}{n^2+a^2} \cos nx \text{ and } \sum_{n=1}^{\infty} \frac{nI_n(r)}{n^2+a^2} \sin nx \text{ textbook] Tablitsy i for-}$$

muly summ trigonometricheskikh riadov vidov

$$\sum_{n=1}^{\infty} \frac{I_n(r)}{n^2+a^2} \cos nx \text{ i } \sum_{n=1}^{\infty} \frac{nI_n(r)}{n^2+a^2} \sin nx; \text{ uchebnoe posobie. Pod red.}$$

A.M. Zvezdnogo. Leningrad, 1961. 47 p.

(MIRA 15:12)

1. Leningrad. Elektrotekhnicheskiy institut svyazi.

(Fourier series) (Mathematics--Tables, etc.)

ZA'FZDNYI, A.M.; KUSHNIR, V.F.; RAMM, G.S., otv. red.; GAL'CHINSKAYA,  
V.V., tekhn. red.

[Parametric systems; outline of lectures on the course  
"Theoretical radio engineering."] Parametricheskie sistemy;  
konspekt lektsii iz kursa "Teoreticheskaya radiotekhnika."  
Leningrad, Leningr. elektrotekhn. in-t svyazi, 1962. 110 p.  
(MIRA 17:3)

ZAYEZDNYI, A.M.; GAL'CHINSKAYA, V.V., tekhn. red.

[Principles of the theory of discrete transformation  
of continuous communication; Kotel'nikov's theorem]  
Osnovy teorii diskretizatsii nepreryvnykh soobshche-  
nii; teorema Kotel'nikova. Konspekt lektsii po kursu  
"Teoreticheskaya radiotekhnika." Leningrad, Elektro-  
tekhnicheskii in-t svyazi, 1963. 13 p. (MIRA 17:2)

KUSHNIR, V.F.; YUROVSKIY, A.V.; NIKOLAYEVA, T.T.; ZAYBZDNYI, A.M.  
red.

[Tables and formulas of V.K.Turkin functions

$T_{\frac{1}{m}}^{(1)}(x, \alpha) = \sum_{n=-\infty}^{\infty} \frac{J_n(x) J_{n-m}^{(1)}(x)}{n - \alpha}$ ; a manual] Tablitsy i  
formuly funktsii V.K.Turkina,  $T_{\frac{1}{m}}^{(1)}(x, \alpha) = \sum_{n=-\infty}^{\infty} \frac{J_n(x) J_{n-m}^{(1)}(x)}{n - \alpha}$ ;  
uchebnoe posobie. Leningrad, 1963. (MIHA 17:9)

89 p.

1. Leningrad. Elektrotekhnicheskiy institut svyazi.

GOL'DENBERG, Lev Moiseyevich; ZAYEZNYY, A.M., otv. red.; YAKOBSON,  
A.Kh., red.; ROMANOVA, S.F., tekhn. red.

[Principles of pulse techniques] Osnovy impul'snoi tekhniki.

Moskva, Svyaz'izdat, 1963. 399 p. (MIRA 1617)

(Pulse techniques (Electronics))

ZAYEZDNYI, A.M.; EYDUKIYAVICHYUS, O.V.

Abridged representation of signals with the aid of a system of  
orthogonal functions. Radiotekhnika 18 no.11:5-12 N '63.  
(MIRA 16:12)

1. Deystvitel'nyye chleny Nauchno-tekhnicheskogo obshchestva  
radiotekhniki i elektrosvyazi imeni Popova.

ZAYEZDNYI, A.M.; FERMAN, B.A., retsentsent; KHANOVICH, I.G., red.

[Principles of statistical radio engineering; a manual  
(chapters 3-6)] Osnovy statisticheskoy radiotekhniki;  
uchebnoe posobie (par.3-6). Leningrad, Leningr. elektro-  
tekhn. in-t svyazi, 1964. 104 p. (MIRA 18:8)



ZAYEZDNY, A.M.; HAKHOVICH, I.M.

Criteria for evaluating the stability of communication channel  
characteristics. Elektrosviaz' 18 no.12:71-72 D '64.

(MIRA 18:1)

ACCESSION NR: AP4038598

S/0108/64/019/005/0017/0025

AUTHOR: Zayezdnyy, A. M. (Active member); Baskin, R. F. (Active member)

TITLE: Iterated networks passing complex-shape periodic oscillations

SOURCE: Radiotekhnika, v. 19, no. 5, 1964, 17-25

TOPIC TAGS: electric network, iterated network, ladder network

ABSTRACT: Harmonic synthesis and some results of the modern quadripole theory are used for studying the steady-state and transient processes in iterated networks (e.g., a ladder network) when they are energized by a complex-shape periodic voltage. The setting up of high-order differential equations is carried out by the quadripole theory and matrix calculus as reported by A. M. Zayezdnyy earlier (LEIS, 1962). The roots of a characteristic operator are determined by means of Cheby\*shev's polynomials. The transfer factor of a series of  $m$  four-pole sections is an  $m$ -th order Cheby\*shev's polynomial of the transfer factor of

Card 1/2

ACCESSION NR: AP4038598

a component section. Iterated networks consisting of first-order (a high-pass filter) and second-order (an LC low-pass filter) sections are considered. Transient characteristics can be obtained from the general solution treated as a particular case in which square pulses have a long repetition period. Orig. art. has: 4 figures and 45 formulas.

ASSOCIATION: Nauchno-tekhnicheskoye obshchestvo radiotekhniki i elektrosvyazi (Scientific and Technical Society of Radio Engineering and Electrocommunication)

SUBMITTED: 12Apr63

DATE ACQ: 09Jun64

ENCL: 00

SUB CODE: EC

NO REF SOV: 007

OTHER: 000

Card 2/2

ZAYEZDNYI, A.M.

Review of I.S. Gonorovskii's book "Radio circuits and signals,"  
Radiotekhnika 19 no.9:74-77 S '64. (MIRA 17:10)

1. Deystvitel'nyy chlen Nauchno-tekhnicheskogo obshchestva  
radiotekhniki i elektrosvyazi im. A.S. Popova.

ZAYEZINYY, A.M.; KHANOVICH, I.S.

Comparative characteristics of communication systems. *Elektrosvyaz'*  
19 no.4:1-8 Ap '65. (MIRA 18:6)

L 33445-66 EWT(d)/FSS-2

ACC NR: AR6012293

SOURCE CODE: UR/0274/65/000/010/A007/A007

AUTHOR: Zayezdnyy, A. M.; Khanovich, I. G.

TITLE: Theory of self-organizing communication systems 8

SOURCE: Ref. zh. Radiotekhnika i elektrosvyaz', Abs. 10A49

REF SOURCE: Tr. uchebn. in-tov svyazi. M-vo svyazi SSSR, vyp. 22, 1964, 3-12

TOPIC TAGS: communication system, signal noise separation

ABSTRACT: Principal solutions are set forth of some problems of the general theory of self-organizing communication systems which are broken into two groups: (a) a signal-type self-organization where the most noise-immune signals are selected for various types of noise and (b) a weight-function self-organization where the signal-noise separation is performed by auxiliary signals produced by the receiver (the shape of these signals depends on the type of noise). Optimal signals with a specified set of alphabets or with an alphabet formation are determined. Signal detection by means of a weight function is considered. It is stated that, in principle, the above systems can be synthesized and must include high-speed special computers. Bibliography of 4 titles. L. S. [Translation of abstract]

SUB CODE: 17, 09

Card 1/1 *ply*

UDC: 621.391.19

RUSAKOV, Maksim Grigor'yevich; ZAYEZDNIY, Rafail Aronovich; YEROFEYEV,  
I.A., red.; ZAITSEVA, K.F., red.kart; KORNEYEVA, V.I., tekhn.red.

[Kiev, capital of the Soviet Ukraine] Kiev - stolitsa Sovetskoi  
Ukrainy. Moskva, Gos.uchebno-pedagog.izd-vo M-va prosv.RSFSR,  
1960. 102 p. (MIRA 13:10)

(Kiev)

ZAYEZZHEV, N.M.; BORISENKO, S.T.; IGUMNOV, S.A.; KABRIZON, V.M.;  
TYAZHLOV, G.T.; SEDENKO, M.V.

Preservation of underground waters in connection with the  
drainage of ore deposits. Razvud. i okh. nodr. 30 no.11;  
36-41 N '64. (MIRA 18:4)

1. Treat "Dnoprogeologiya" (for all except Sedenko). 2. Dnepro-  
petrovskiy gornyy institut (for Sedenko).



SKABALLANOVICH, Ivan Antonovich. Prinimeli uchastiye: ZAYEZZHEY, H.M.;  
BOLYAKOV, I.P. VOLOD'KO, I.F., retsentsent; VLADIMIROV, A.G.,  
red.; MNTIN, M.L., red.isd-va; BYKOVA, V.V., tekhn.red.

[Method of trial pumpings] Metodika opytnykh otkachek. Moskva,  
Gos.nauchno-tekhn.isd-vo lit-ry po geologii i okhrane neдр,  
1960. 111 p. (MIRA 13:10)

(Mine drainage)

ZAYFFERT, K.: DAVYDOV, V.

Centralized freight haulage in socialist countries. Avt.transp.  
39 no.9:58 S '61. (MIRA 14:10)  
(Communist countries--Transportation, Automotive)

ZAYFFERT, V., kapitan

Fifteen years without a country. Starsh.-serzh. no.7:36-37 J1  
'62. (MIRA 16:6)

(Motion picture plays)

~~ZAYMAN, V.I.~~

Using pyridine as a solvent in plants. Med.prom. 11 no.4:34-39  
Ap '57. (MLRA 10:6)

1. Moskovskiy khimiko-farmatsevticheskiy zavod imeni N.A.Semashko.  
(PYRIDINE)

S/119/62/000/002/008/010  
D201/D301

AUTHORS: Zaygermacher, D.M. and Savel'yeva, K.A.

TITLE: Pneumatic instruments with centrifugal feedback

PERIODICAL: Priborostroyeniye, no. 2, 1962, 29-30

TEXT: The authors described the new pneumatic compensation instruments with feedback, developed at the NIITeplopriboi: the pneumatic integrator 1CM-48A (ISP-48A) and pneumatic motors ПД-2 (PD-2M) and PD-60M. ISP-48A operates as follows: The pneumatic signal from the differential manometer proportional to the square of the flow of measured substance is applied to the input bellows of an integrator and displaces a lever which by means of a flap covers the nozzle of the balance indicator. Pressure is re-distributed during this in the pneumo-amplifier, so that an amplified signal passes into the circuit of a starting nozzle which drives the rotor. The force developed by the receiving bellows is balanced out by a centrifugal mechanism mounted on the rotor. The rotor shaft is connected through a reduction gear to a counter which performs the operation of

Card 1/2

Pneumatic instruments with ...

S/119/62/000/002/008/010  
0201/0301

addition of the shaft revolutions. The integrator adds the instantaneous values of flow with an accuracy of 1% from 15 to 30% of the maximum flow value. The instrument is undergoing tests at the 'Tizpribor' plant of Mosgorsovnarkhoz. The Smolensk branch of the NiiTeplopribor has developed an attachment for this instrument which makes it possible to obtain pneumatic or electric cut-out signals. The pneumo-motors PD-2M and PD-60M were developed from the above described integrator and are used for chart driving in automatic recorders. The pneumatic motor utilizes the energy of a compressed air stream for moving a rotor, whose speed is maintained by a centrifugal regulator controlling the pressure of air in the nozzles through the pneumatic-amplifier-nozzle-flap system. There are 2 figures. ✓

Card 2/2

ZAYGEROV, I.B., inzh.

New mold conveyers. Mash.Bel. no.4:91-93 '57,  
(Machine molding (Founding))

(MIRA 11:9)

ZAYFRID, Mochislav [Zaifrid, Mieczislav]

Organization of transportation on Polish railroads. Zhel.  
dor. tranap. 41 no. 719-15 J1 '59. (MIRA 12:12)

1. Nachal'nik Glavnogo upravleniya perevozok, Varshava.  
(Poland--Railroads)



ZAYGERMAKHER, D.M.; SAVEL'YEVA, K.A.

Pneumatic devices with a centrifugal feedback. Priborostroenie  
no.2:29-30 F '62. (MIRA 15:2)  
(Pneumatic machinery)

GVOZDEVICH, Aleksandr Makarovich; ZAYGEROV, Iosif Borisovich;  
KOROLEV, Vitaliy Arkad'yevich; SHMORGUN, Yakov Shayeovich;  
KASHTANOV, F., red.; DOKOVSKAYA, G., tekhn. red.

[Mechanization of conveying operations in machinery plants;  
experience of the Minsk Tractor Factory] Mekhanizatsiia tran-  
sportnykh operatsii v mashinostroenii; iz opyta raboty Min-  
skogo traktornogo zavoda. Minsk, Gos.izd-vo BSSR. Red. pro-  
izvodstvennoi lit-ry, 1961. 70 p. (MIRA 15:2)  
(Minsk—Conveying machinery)

ZAYGEROV, I.B.

28(1);25(1) P.3 PHASE I BOOK EXPLOITATION SOV/2831

Mekhanizatsiya i avtomatizatsiya trudoyemkikh protsessov v liteynom proizvodstve (Mechanization and Automation of Labor-consuming Processes in Foundry Practice) Moscow, Mashgiz, 1959. 226 p. Errata slip inserted. 4,000 copies printed.

Reviewer: K. M. Skobnikov, Candidate of Technical Sciences; Ed. (Title page): G. I. Kobylanskiy (Deceased); Ed. (Inside book): A. N. Sokolov, Candidate of Technical Sciences; Tech. Ed.: O. V. Speranskaya; Managing Ed. for Literature on the Technology of Machinery Manufacture (Leningrad Division, Mashgiz): Ye. P. Naumov, Engineer.

PURPOSE: The book is intended for technical personnel in foundries and engineers engaged in the mechanization and automation of industrial processes. It may also be used by students of institutions of higher technical education.

COVERAGE: The book deals with recent achievements in the mechanization and automation of time-and labor-consuming operations in foundries. Specific instances of mechanization and automation of foundry processes are described. The material presented

Card 1/9

Mechanization and Automation (Cont.)

SOV/2831

in this book is divided into six parts, dealing with the following subjects: molding materials, mold and coremaking, casting, shakeout of molds, finishing of castings, and special casting methods. Each part consists of a number of technical papers presented by several authors. The application of automation ranges from the preparation of molds and cores to the mechanization and streamlining of specialized casting methods, such as investment casting and the use of shell molds. There are numerous diagrams showing automatized and mechanized installations in foundries. Most of the material is based on experiments and work done at the "Krasnyy Aksay" Plant. Some of the methods described appear to be in the experimental stage at that plant. The technical papers published in this book were originally presented at a technical conference of the Soviet machine industry in October 1957. No personalities are mentioned. There are no references.

TABLE OF CONTENTS:

Foreword

3

Card 2/9

Mechanization and Automation (Cont.)

SOV/2831

Malakhovskiy, G. V. The State of the Art and Objectives of  
Mechanization and Automation in Foundries in Leningrad 9

PART I. PREPARATION OF MOLDING MATERIALS. MAKING AND  
DISTRIBUTING MOLDING COMPOUNDS

Rezvyi, N. V. Pneumatic Transport of Sand and Mixtures in  
Foundry Shops 13

Zaygerov, I. B., and R. I. Arov. Installation for Pneumatic  
Transport of Dry Sand 23

Fedyanin, B. I. Automatic Distribution of Molding Compounds  
Into Tanks With Pneumatic Control 26

Kril'shteyn, L. M. Automatic Distribution of Molding Compounds  
Into Tanks of Molding Machines 27

Fedyanin, B. I. Pneumatic Inertial Turb vibrator 30

Zaygerov, I. B., and R. I. Arov. Automation of Supplying Tanks  
With Molding Compound 31  
Card 3/9

Mechanization and Automation (Cont.)

SOV/2831

Veselova, A. I. Transport and Distribution of Rapid-drying Waterglass Compounds to Tanks 33

Zaygerov, I. B., and R. I. Arov. Installation for Magnetic Separation of Used Molding Compound 37

Zaygerov, I. B., and R. I. Arov. Jaw Crusher for Cores 38

Mysovskiy, V. S. Overall Automation of Mixing Systems in Foundry Shops 40

PART II. MOLD AND COREMAKING

Zelichenko, G. S. Automated Lines for Molding and Shakeout in Foundry Shops 47

Fedyanin, B. I. Molding Machines at the Khar'kovskiy traktorny zavod (Khar'kov Tractor Plant) 62

Yegorov, B. P. Constructions of New Molding Machines 68

Card 4/9

Mechanization and Automation (Cont.)	SOV/2831
Kril'shteyn, L. M. Production of Sand Molds by Hydraulic Pressing	78
Kiselev, V. A. Mold Making With a Sand Slinger in Steel Foundries	79
Durnev, N. I. Pneumatic Sand-blowing Machine for Coremaking at the "Krasnyy Aksay" Plant	88
Zaygerov, I. B., A. M. Gvozlovich, and I. S. Gendeleovich. Mechanization of Canting and Extraction Operations to Remove Cores From Flasks in Pneumatic Ramming	97
Kremer, M. A., and N. A. Bakhromeyev. Quick-change Equipment for Coremaking on Vibrating Molding Machines in Small-Lot Production	101
Kril'shteyn, L. M. Mechanization of Mold Transfer From Assembly Line to Conveyor Belt	104

PART III. MELTING AND POURING

Poruchikov, Yu. P. Some Problems in the Automation of Charge	
Card 5/9	

Mechanization and Automation (Cont.)	SOV/2831	
Composing and Cupola Charging		106
Zaygerov, I. B., and R. I. Arov. Feeder Mechanisms For Transferring Charge From Storage Bins to Buckets		110
Figner, I. I. Installation for Modifying Cast Iron With Magnesium Under Pressure		113
Burlo, Ye. A. Redesign of Control Mechanisms for Electric-arc Furnaces		118
Zaygerov, I. B., and R. I. Arov. Granulating Installation for Cupola Slag		120
Fedyanin, B. I. Mechanization of Weight Loading of Molds in Conveyor-system Foundries		122
Durnev, N.I. Mechanization of Loading and Unloading of Weights on Conveyors in the "Krasnyy Aksay" Plant		123
Fedyanin, B. I. Mechanization of Pouring Liquid Metal		127
Card 6/9		



Mechanization and Automation (Cont.)

SOV/2831

Arov, R. I., and I. B. Zaygerov. Automated Line for Casting  
of Crawler Tracks 131

PART IV. SHAKEOUT OF MOLDS

Durnev, N.I. Automatic Shakeout of Molds at the "Krasnyy Aksay"  
Plant 134

Fedyanin, B. I. Semiautomatic Shakeout of Molds on Casting  
Conveyors 138

Zaygerov, I. B., and R. I. Arov. Automatic Shakeout and  
Stripping of Flasks in MTZ Foundry Shops 141

Fedyanin, B. I. Hydromechanical Unloader for Apron Conveyors 144

PART V. TRIMMING AND CLEANING CASTINGS

Fedyanin, B. I. Continuous Conveyor Belt for Cleaning Castings 146

Card 7/9

Mechanization and Automation (Cont.)	SOV/2831
Volynskiy, V. N. Hydroblast Installation for Cleaning Castings	154
Zaslavskiy, M. Ya. Hydroblast Cleaning of Castings	162
Ginzburg, A. D. Overall Mechanization of Steel-casting Cleaning Shops	167

PART VI. SPECIAL CASTING METHODS

Dol'berg, Z. A. Mechanization and Automation of Investment Casting	176
Belousov, N.N. Recent Non-Soviet Achievements in the Automation and Mechanization of Die Casting	188
Lupyrev, I.I., N. F. Borovskiy, G. P. Nikitin, A. L. Zayats, and S. I. Fomichenko. Mechanization of the Production of Small High-precision Castings in Pressed Bakelite-base Shell Molds	202
Ginzburg, A. D. Semiautomatic Machine for Making Shell Molds	210

Card 8/9

Mechanization and Automation (Cont.)	SOV/2831	
Smirnov, F. I. Mechanization of Shell-mold Casting		212
Speranskiy, G. N. Use of High-frequency Electric Heating for Bonding Shell Mold Halves		216
Fedyanin, B. I. Semiautomatic Turntable Machine for Casting and Shakeout of Shell Molds		223
AVAILABLE: Library of Congress		1-15-60 GO/ec
Card 9/9		

PHASE I BOOK EXPLOITATION

SOV/5585

Zaygerov, Iosif Borisovich

Regeneratsiya otrabotannykh smesey v liteynom proizvodstve; konstruktsiya i raschet pnevmaticheskikh regeneratov (Reclamation of Used Mixtures in Founding; Construction and Design of Pneumatic Reclaimers) Moscow, Mashgiz, 1961. 181 p. Errata slip inserted. 5,000 copies printed.

Reviewer: M. N. Sosnenko, Engineer; Ed. of Publishing House: A. I. Sirotin; Tech. Ed.: V. D. El'kind; Managing Ed. for Literature on the Hot Working of Metals: S. Ya. Golovin, Engineer.

PURPOSE: This book is intended for engineers and technicians in production and design in founding. It may also be used by students specializing in founding.

COVERAGE: A review is presented of existing methods and equipment for reclaiming used mixtures. A recently developed method for reclaiming mold and core mixtures, called the "pneumatic reclaiming method" and based on the utilization of a compressed-air blast is discussed in detail.

Card 1/6

# Reclamation of Used Mixtures (Cont.)

80V/5585

Reclaimers of this type are called pneumatic reclaimers. The results of theoretical and experimental investigations of the performance of pneumatic reclaimers are presented. Design methods and a description of reclaiming-unit flow charts are given. The author acknowledges his use of the Transactions of VTI (All-Union Heat-Engineering Institute), written under the supervision of M. L. Kisel'gof, and the assistance of the following: A. M. Gvozdevich, Chief of the Mechanization Department of MTZ (Minskiy traktorny zavod -- Minsk Tractor Plant); and Engineers Ya. Sh. Shmorgun, T. S. Timofeyev, R. I. Arav, A. I. Kuleshova, and G. Ye. Gorodetskiy. There are 34 references: 33 Soviet and 1 English.

## TABLE OF CONTENTS:

Foreword

3

### PART ONE. REVIEW OF EXISTING METHODS OF RECLAIMING USED MIXTURES

Ch. I. Introductory Information

1. Concise description and fundamental properties of molding sands
2. Molding and core mixtures

5

6

13

Card 2/6

ZAYGEROV, Iosif Borisovich: prínimali uchástiya: GVOZDEVICH, A.M.,  
SHMORGUN, Ya.Sh., inzh.; TIMOFEYEV, T.S., inzh.; ARAV, R.I.,  
inzh., KULESHOVA, A.I., inzh.; GORODETSKIY, G.Ye., inzh.;  
SOSNENKO, M.N., inzh. retsenzént; SIROTIN, A.I., red.;  
EL'KIND, V.D., tekhn. red.

[Reclamation of used sand mixtures; design of pneumatic reclaimers]  
Regeneratsiya otrabotannykh smesey v liteinom proizvodstve; kon-  
struktsiya i raschet pnevmaticheskikh regenerátorov. Moskva, Gos.  
nauchno-tekhn. izd-vo mashinostroit. lit-ry, 1961. 181 p.  
(MIRA 14:5)

1. Nachal'nik otdela mékhanizatsii Moskovskogo transformativnogo  
zavoda (for Gvozdevich, Shmorgun, Timofeyev, Arav, Kuleshova,  
Gorodetskiy)

(Sand, Foundry)

(Pneumatic machinery)

ZAYGEROV, I.B., insh.

Automatic equipment for knocking out and separating flasks on  
founding conveyers. Mash.Bel. na.4:94-99 '57. (MIRA 11:9)  
(Foundry machinery and supplies)

ZAYGEROV, I.B.

Ways of automatizing metal pouring into molds on mold conveyors.  
Lit. proizv. no.3:11-14 Mr '58. (MIRA 11:4)  
(Foundry machinery and supplies)



ZAYICHEK

CZECHOSLOVAKIA/Physical Chemistry - Thermodynamics,  
Thermochemistry.

D.

Abs Jour : Ref Zhur - Khimiya, No 12, 1958, 38928

Author : Rektorzhik, Rybachek, Zayichek.

Inst : -

Title : Cryoscopic Determinations.

Orig Pub : Ceskosl. farmac., 1957, 6, No 10, 595-599

Abstract : The authors made analytical determinations of the concentration of borate and phosphate buffer solutions simultaneously with cryoscopic depressions of those solutions and calculated isotonic compositions for them.

Card 1/1

SVOBODA, M.; KNAPEK, D.; ZAYICHEK, K.

Effect of the method of application of paint and varnish coatings  
on their protective properties. Lakokras.mat.1 ikh prim.  
no.1:44-45 '63. (MIRA 16:2)

1. Gosudarstvennyy nauchno-issledovatel'skiy institut  
zashchity materialov imeni G.V. Akimova, Praga. Chexoslovatskaya  
Sotsialisticheskaya Respublika.

(Protective coatings)

(Paint materials)

Card 1/1

ZAYKA, A.A.; LITVAK, V.I.

Automatic polarimeters. Prib. i tekhn. eksp. no. 4:78-81 J1-Ag '57.  
(MIRA 10:10)

1. Kiyevskiy zavod kontrol'no-izmeritel'nykh priborov.  
(Saccharimeter)

ZAYKA, I.N., kand.tekhn.nauk; DRABAN, A.Z., inzhener

Thermal properties of large blocks made of effective ceramic  
stones. Stroimaterialy. 6 no.2:29-31 F '60. (MIRA 13:6)  
(Building blocks) (Ceramic materials)

*N*  
ZAYKA, I., kand. tekhn. nauk

Methods for drying green brick and its quality. Sil'.bud. 10  
no.6:17-18 Je '60. (MIRA 13:6)  
(Bricks--Drying)

1. ZAYKA, I. YE.
2. USSR (600)
4. Wheat
7. How the Volkov Collective Farm produces a high yield of winter wheat. Sov. agron.  
10 No. 12, 1952.
9. Monthly List of Russian Accessions, Library of Congress, February 1953. Unclassified.

RAYNA, I. YE.

Seed Industry

Landing Seed culture collective farm. Sel. 1 sem., 19, No. 9, 1952.

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ZAICA, Ivan Yefremovich; BENYUMOV, O.M., redaktor; FURMAN, G.V.,  
tekhnicheskiiy redaktor

[Raising high yields of grain in Kirovograd Province] Vyrashchi-  
vanie vysokikh urozhaev zernovykh v Kirovogradskoi oblasti. Moskva,  
Izd-vo "Znanie," 1956. 23 p. (Vsesoiuznoe obshchestvo po raspro-  
straneniu politicheskikh i nauchnykh znani. Ser.5, no.22)  
(MIRA 9:9)

1. Glavnyy agronom Kirovogradskogo oblastnogo upravleniya sel'skogo  
khozyaystva (for Zaika)  
(Kirovograd Province--Grain)

Fuel Abstracts  
Vol. XV, No. 2  
Natural Solid  
Fuels: Winning  
Feb. 1954

✓ 973. ROCK MOVEMENT DURING WORKING OF SERIES OF SEAMS IN LONGWALL.  
Zalka, K.P. ✓ (Udel (Coal), Sept. 1953, 13-15). The problem of allowing  
for the removal of more than one coal seam in calculations is discussed.  
The importance of basing theory on underground as well as surface  
measurements is stressed. (1).

ZAYKA, N.I.; NEMETS, O.F.

Spins and parity levels of  $Ti^{47-50}$  and  $Sr^{89}$ . Izv. AN SSSR Ser.  
fiz. 24 no.7:865-868 J1 '60. (MIRA 13:7)

1. Institut fiziki Akademii nauk USSR.  
(Titanium--Isotopes)

(Strontium--Isotopes)

ZAYKA, N.I.; NEMETS, O.P.; PROKOPENKO, V.S.

Spins and parity levels of  $\text{Ca}^{41}$ . Izv. AN SSSR Ser. fiz. 24 no. 7:  
872-873 J1 '60. (MIRA 13:7)

1. Institut fiziki Akademii nauk USSR.  
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ZAYKA, N.I.; NEMETS, O.F.; TSERINEO, M.A.

Spins and parity levels of  $C^{13}$ . Izv.AN SSSR Ser.fiz. 24 no.7:  
862-864 J1 '60. (MIRA 13:7)

1. Institut fiziki Akademii nauk USSR i Institut "Rudzher Boshkovich"  
Zagreb, Yugoslaviya.  
(Carbon--Isotopes)

ZAYKA, N.I.; LYUBANSKIY, O.B.; NEMETS, O.F.

Instrument for the conversion of readings from the binary to the decimal system. Priib. i tekhn. eksp. no.6:130-131 N-D '60.

(MIRA 13:12)

1. Institut fiziki AN USSR.

(Information theory)

NEMETS, O. F.; TOKAREVSKIY, V. V.; ZAYKA, N. I., Kiev

"The level excitation probabilities in nuclear reactions."

report submitted for Intl Conf on Low & Medium Energies Nuclear Physics,  
Paris, 2-8 Jul 64.

ZA/KA, P.M.

Determining parameters of auger conveyors in grain combines.  
Trakt. i sel'khoz mash. no.1:22-24 Ja '58. (MIRA 11:4)

L.Khar'kovskiy politekhnicheskii institut imeni V.I. Lenina.  
(Combines (Agricultural machinery))



IL'CHENKO, N.S., kand.tekhn.nauk; ZAYKA, V.V., inzh.

Ionisation aging of the insulation of the high-voltage  
electric machinery. Izv.vys.ucheb.sav.; energ. 2 no.11:  
42-46 N '59. (MIRA 13:4)

1. Kiyevskiy ordena Lenina politekhnicheskoy institut. Pred-  
stavlena kafedroy dielektrikov i poluprovodnikov.  
(Electric insulators and insulation)  
(Electric machinery)

ZAYKIN, A., dotsent; ZVEREV, A.

Activists check up. Okhr.truda i sots.strakh. 4 no.12:8 D '61.

(MIRA 14:11)

1. Predsedatel' obshchestvennogo soveta po kontrolyu za  
soblyudeniym trudovogo zakonodatel'stva Moskovskogo  
gorodskogo soveta profsoyuzov i Moskovskiy gorodskogo  
soveta professional'nykh soyuzov (for Zverev).

~~(Moscow Trade unions)~~  
(Industrial hygiene)

~~ZAYKIN, Aleksey Danilovich; GORNOSTAYEVA, S.S., red.; SHCHEDRINA,~~  
~~N.L., taken. Feb.~~

[State social insurance in the U.S.S.R.] Gosudarstvennoe  
sotsial'noe strakhovanie v SSSR. Moskva, Gosizdat,  
1963. 40 p. (MIRA 16:7)  
(Insurance, Social)



**BC**

**ZAYKLN A-3**

**Phenolic derivative of alizarin-naphthrole. A. A. Zayur (Asilimkpa. From 1933, 3, 186-188).**  
The condensation of numerous phenols with *pp*-diamino-anthrarin-2; 5-disulphonic acid and the dimethyl-amino-acid (according to D.R.P. 445,269 and 443,665) has been investigated; quinol, *p*-chloro-, *o*- and *p*-nitro- and *p*-amino-phenols, anisoyls and cresotic acid did not react. The amount of H<sub>2</sub>SO<sub>4</sub> employed can be reduced (from 5 to 5 times the wt. of the disulphonic acid, except in condensations with naphthols) and only a small excess of the phenol (1-2%) and of H<sub>2</sub>BO<sub>3</sub> (1% of the wt. of disulphonic acid) need be used. Most phenols give dyes similar to alizarin-naphthrole 8E and of comparable fastness; dihydro phenols give poor shades.  
**(I. A. R. K.**

**BII 4**

**Metallurgical Literature Classification**

METALLURGICAL LITERATURE CLASSIFICATION										CLASSIFICATION																																																																																									
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10

Refining of crude anthracene with pyridine bases.

M. A. Il'inski, A. A. Zolkin and L. I. Brantberg. *Auktsionirovaniye* *Proizv.* 4, 152-5 (1934); cf. Isent'ev, *Ibid.* 1, No. 9-10, 53 (1931).—The method of Ger. pat. 42,053 of refining crude anthracene with conc. pyridine base was improved. Crude anthracene was boiled with  $H_2O$  and then treated with conc. pyridine to which was added 0.1 part (or less) of  $H_2SO_4$  or  $FeCl_3$  (based on the amt. of anthracene in the crude product). Thus from 12% crude anthracene was obtained in 1 operation 62-4% anthracene with a loss of 25-30% of crude anthracene. Evidently the soly. of carbazole in pyridine is increased in the presence of some pyridine sulfate or hydrochloride, which reduces the ability of carbazole to form insol. complex compds. with anthracene. Chas. Blanc

ABSTRACTS METALLURGICAL LITERATURE CLASSIFICATION

ZAYKIN A. A.

*Dynamics of acid saponification of benzoyl derivatives of anthraquinones. M. A. Il'inski and A. A. Zaykin. J. Gen. Chem. (U. S. S. R.) 4, 1214-1217 (1934); cf. C. A. 29, 4792. In a study of  $H_2SO_4$  action of the derivatives of anthraquinones, it was found that the most difficultly saponified is dibenzoyl-1,8-diaminoanthraquinone. In the case of  $\alpha$ - and  $\beta$ -benzoylaminoanthraquinones, increase of rate of sapon. with concn. of  $H_2SO_4$  is less pronounced than in the case of dibenzoyldiaminoanthraquinones. Of the last group, the 1,5-compd. has the highest increase of rate of sapon. with increase of concn. of  $H_2SO_4$ . Next in order are dibenzoyl-1,8- and dibenzoyl-1,4-diaminoanthraquinone. In sapon. only 1 its group at room temp. or lower, the most easily saponified is the 1,4-compd. which changes smoothly into the mono-Bz deriv. in 4 hrs. at 0°. The rate of sapon. of dibenzoyl-1,8-diaminoanthraquinone falls rapidly with lowering of temp., while in the case of the 1,4-compd., there is a slight increase of rate with rise in temp.  $\beta$ -Benzoylaminoanthraquinone saponifies more readily than the  $\alpha$ -compd. S. L. M.*

PETROVSKIY, I.G., akademik; OGIBALOV, P.M., prof.; ZAYKIN, A.D., dotsent

Leonid Nikolaevich Sretenskii; on his sixtieth birthday anniversary. Vest.Mosk.un.Ser.1:Mat., mekh. 17 no.2:76-80 Mr-Ap '62. (MIRA 15:6)

1. Rektor Moskovskogo universiteta (for Petrovskiy).  
(Sretenskii, Leonid Nikolaevich, 1902-)



ABRAMOVA, A.A.; ANDREYEV, V.S.; ZAYKIN, A.D.; MIROMOV, V.K.;  
SAKHAROVA, I.M., red.; KOSAREVA, Ye.N., tekhn.red.

[Collected decisions and rulings of the Supreme Court of the  
R.S.F.S.R. in labor cases, 1953-1958] Sbornik postanovlenii  
i opredelenii Verkhovnogo suda RSFSR po trudovym delam, 1953-  
1958 gg. Moskva, Gos.isd-vo iurid.lit-ry, 1959. 243 p.  
(MIRA 13:4)

1. Russia (1917- R.S.F.S.R.).Verkhovnyy sud.  
(Labor laws and legislation)

207 KIN, A. E.

ZA<sup>Y</sup>KIN, A. E., T. M. MEL'KUMOV and A. A. DOBRYNIN.

Aviatsionnye motory; posobie dlia tekhnicheskogo sostava VVS  
RKKA. Moskva, Gosvoenizdat, 1937+367 p., diagrs.

Bibliography: v. 1, p. 363.

Title tr.: Aircraft engines; a handbook for technical personnel  
of the Red Army Air Force.

TL701.Z3

SO: Aeronautical Sciences and Aviation in the Soviet Union, Library of  
Congress, 1955.

SYROMYATNIKOVA, Z.A., kand. tekhn. nauk; CHERNYKH, A.A., kand. tekhn. nauk;  
ZAYKIN, A.I., inzh.; IVANOV, V.M., inzh.

Saturation irrigation on large checks. Gidr. i mel. 16 no.9:10-21  
S '64. (MIRA 17:11)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut gidrotekhniki i  
melioratsii imeni A.N. Kostyakova (for Zaykin). 2. Yuzhnyy gosu-  
darstvennyy institut po proyektirovaniyu vodokhozyaystvennogo i  
meliorativnogo stroitel'stva (for Ivanov).

ZAYKIN, D.A.

On the theory of nonspherical nuclei according to the independent  
particle model. Trudy Fiz. inst. 14:3-58 '62. (MIRA 16:2)  
(Nuclear models)

ZAYKEN, A. YE.

AID 250 - I

PHASE I

TREASURE ISLAND BIBLIOGRAPHICAL REPORT

Call No.: TL709.Z3

BOOK

Author: ZAIKIN, A. YE.

Full Title: ATLAS OF TYPICAL LAYOUTS OF AVIATION REACTION AND TURBO-PROPELLER  
ENGINES

Transliterated Title: Atlas tipovykh skhem vozdushno-reaktivnykh i turbo-  
vintovykh dvigateley

Publishing Data

Originating Agency: None

Publishing House: State Publishing House of the Defense Industry (Oborongiz)

Date: 1950

No. pp.: 73

No. of copies: Not given

Editorial Staff

Editor: None

Tech. Ed.: None

Appraiser: None

Editor-in-Chief: None

Others: Aleshchenko, S. P. prepared the text  
for publication; Malkov, A. N. and  
Minchenko, S. I., elaboration of details.

Text Data

Coverage: This atlas text-book describes the basic characteristics of aviation  
reaction engines and turbo-propeller engines, and contains photos  
and diagrams of component sets, detached junctions, and accessories.

Atlas tipovykh skhem vozdushno-reaktivnykh  
i turbo-vintovykh dvigateley

AID 250 -- I

It is well-compiled and well-presented. However, practically all of the engines and engine parts illustrated were copied from American, British, and German sources. The author also gives a chronological review of the development of the reaction engine in Russia, starting with Sokovin, N. M. in 1866, and ending with the experimental construction of Engineer Lyulka, A. M., in 1937.

Purpose: It is a textbook approved by the Ministry of Higher Education, for students of institutions of higher learning. It is also a handbook for workers of design bureaus, and for technical staffs in aviation.

Facilities: Names of Russian scientists and engineers connected with the development of reaction engines in 1937 and before this date appear in the introduction.

No. of Russian and Slavic References: None

Available: Library of Congress.

2/2

ZAYKIN, G.G.

Council of innovators is in action. Mashinostroitel'  
no. 5:4 My '4. (MIRA 17:7)

L 36445-66 EWT(m)/EWP(e)/EWP(t)/ETI IJP(c) AT/WH/WJ/JH/JD/JG

ACC NR: AP6018071

(N)

SOURCE CODE: UR/0076/66/040/005/1070/1076

AUTHOR: Kornilov, A. N.; Zaykin, I. D.; Skuratov, S. M.; Shvaykin, G. I.

ORG: Moscow State University im. M. V. Lomonosov (Moskovskiy gosudarstvenny'y universitet); Institute of Chemistry, Ural Affiliate AN SSSR (Institut khimii Uralskogo filiala AN SSSR)

TITLE: Standard heats of formation of niobium carbides from the NbC phase

SOURCE: Zhurnal fizicheskoy khimii, v. 40, no. 5, 1966, 1070-1076

TOPIC TAGS: niobium compound, carbide, heat of formation, heat of combustion

ABSTRACT: Standard heats of formation ( $-\Delta H$ ) of niobium carbides ( $NbC_x$ ; where:  $x = 0.830, 0.703, \text{ and } 0.739$ ) from the NbC phase were calculated on the basis of experimentally determined heats of combustion of these carbides in an oxygen stream at  $1050^\circ\text{C}$ . High accuracy of the  $-\Delta H$  values was assured by using high purity carbide samples and by taking into account the formation (in the course of combustion) of  $\text{CO}_2$ ,  $\text{CO}$ ,  $\text{H}_2\text{O}$ , and solid products. The individual carbides used were homogeneous and their respective lattice parameters were:  $4.458 \text{ \AA}$  for  $NbC_{0.838}$ ,  $4.454 \text{ \AA}$  for

Card 1/2

UDC: 541.11



L 36445-66

ACC NR: AP6018071

NbC<sub>0.783</sub>, and 4.442 Å for NbC<sub>0.739</sub>. For the series of eight samples of each carbide, the average heats of combustion (at 1050°C) were found to be: 2667.8±0.8 cal/g for NbC<sub>0.838</sub>, 2642.1±1.5 cal/g for NbC<sub>0.783</sub> and 2626.2±1.3 for NbC<sub>0.739</sub>. The calculated standard heats of formation (-ΔH) of niobium carbides from metallic niobium and β-graphite are: -30.0±0.5 kcal/g for NbC<sub>0.838</sub>, -28.9±0.7 kcal/g for NbC<sub>0.783</sub>, and -28.7±0.5 kcal/g for NbC<sub>0.739</sub>. The general formula for calculating standard heats of formation of niobium carbides from NbC phase is: -ΔH formation NbC<sub>x</sub> = 18.19+1400x kcal/g. Orig. art. has: 4 tables.

SUB CODE: 07/ SUBM DATE: 23Dec64/ ORIG REF: 012/ OTH REF: 003

11/  
20/

Card 2/2 25

ACCESSION NR: AP4033403

S/0076/64/038/003/0702/0707

AUTHORS: Kornilov, A.N. (Moscow); Zaykin, I.D. (Moscow); Skuratov, S.M. (Moscow); Dubrovskaya, L.B. (Moscow); Shveykin, G.P. (Moscow)

TITLE: Standard heats of formation of tantalum carbides from Ta sub 2 C phase

SOURCE: Zhurnal fizicheskoy khimii, v. 38, no. 3, 1964, 702-707

TOPIC TAGS: tantalum carbide, heat of combustion, heat of formation, Ta sub 2 C phase, impurity

ABSTRACT: The heats of combustion of tantalum carbide with  $TaC_{0.455}$  (1) and  $TaC_{0.507}$  (2) composition from the Ta<sub>2</sub>C phase have been determined. The carbides had less than  $5 \cdot 10^{-3}$  weight % of Sn, Cu and Mn impurities and less than  $1 \cdot 10^{-3}$  weight % of Sb, Ni, Mg, Zr, Ca, Al, W, Pb, Bi and Cd impurities. The carbon content of the carbides was determined with 0.01 - 0.02 % accuracy from the content of CO<sub>2</sub> produced upon combustion of carbide in a stream of oxygen at 1058°C. The O, N and H content was determined by the vacuum fusion method with accuracy  $\pm 0.02$  % for O and N and  $\pm 0.001$  % accuracy for H. The Nb,

Cord 1/3

ACCESSION NR: AP4033403

Si, Ti and Fe content was determined spectrographically with accuracy of  $\pm 0.01 - 0.02 \%$ . The other impurities were determined by spectral analysis with accuracy of  $\pm 0.001 - 0.005 \%$ . By x-ray phase analysis it was established that compounds 1 and 2 are homogeneous and have hexagonal lattice with the following lattice parameters:  $a=3.104 \text{ \AA}$ ,  $c=4.936 \text{ \AA}$  and  $a=3.105 \text{ \AA}$ ,  $c=4.936 \text{ \AA}$  respectively. The conditions for the combustion of carbides with respect to tantalum and carbon were chosen to be approximately 100 %. The errors in the values for the  $\Delta H^\circ$  of formation for (1) and  $\Delta H^\circ$  of formation for (2) include the errors of determination of the heat of combustion of carbides, errors of the determination of  $\Delta H^\circ$  of formation of  $Ta_2O_5$  and  $\Delta H^\circ$  of formation of  $CO_2$  and the errors of the index for carbon in the carbide formulae. The calculated standard heats of formation for (1) and (2) from tantalum metal and  $\beta$ -graphite were:  $\Delta H^\circ$  of formation for 1 is equal to  $-23.3 \pm 1.0 \text{ kcal/g-formula wt.}$  and  $\Delta H^\circ$  of formation for 2 is equal to  $-25.1 \pm 1.0 \text{ kcal/g-formula wt.}$  Orig. art. has: 3 tables.

Card 2/3

ACCESSION NR: AP4033403

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova (Moscow State University im. M.V. Lomonosov) Institut khimii Ural'skogo filiala AN SSSR (Institute of Chemistry of the Ural Branch of the Academy of Sciences SSSR)

SUBMITTED: 20Aug63

ENCL: 00

SUB CODE: IC

NR REF SOV: 012

OTHER: 003

Card 3/3

S/195/61/002/004/008/008  
E194/E555

AUTHORS: Sharonov, M.N. and Zaykin, I.D.

TITLE: Dielectric measurements on surface active substances:  
1. Determination of the permittivity of aluminium  
oxide, silica gel and industrial aluminium-silicate  
catalyst

PERIODICAL: Kinetika i kataliz, v.2, no.4, 1961, 581-583

TEXT: A liquid capacitor was constructed to determine the permittivity  $\epsilon$  of solids by the immersion method (F.Schmidt - Ref.6: Ann.Phys., 64, 713, 1921) and was used to determine  $\epsilon$  for aluminium oxide, silica gel and industrial aluminium-silicate catalyst in various conditions. The measurements were made with a Q meter type KB-1 (KV-1). The measuring capacitor was a brass cylinder 11 cm long of 3.6 cm internal diameter into which was screwed a plate with transparent plastic insulation. The plate formed a disc capacitor with the bottom of the vessel. The screw had a travel of 1 mm and the head was divided into 100 equal divisions, so that the distance between the plate and the bottom of the cylinder could be determined to within 0.01 mm. The measuring  
Card 1/3

Dielectric measurements ...

S/195/61/002/004/008/008  
E194/E555

capacitor was calibrated on the following standard fluids: benzene, toluol, chlorobenzene and dichlorethane. The calibrations were carried out at a frequency of 1.5 Mc/s and a temperature of 20°C. The capacitance of the capacitor empty was 16.3 pF. The temperature was controlled by placing the capacitor in a vacuum flask filled with water whose temperature was regulated to within  $\pm 0.2^\circ\text{C}$ . The immersion fluids used were benzene, chlorobenzene and dichlorethane, and the permittivities of mixtures of powder and liquid were found from the calibration curves. The equipment was checked on a material of known  $\epsilon$ , namely, calcium chloride, which was first dried and cooled over phosphorous pentoxide. The value obtained,  $\epsilon = 4.88$  at 20°C, is in good agreement with published data. The materials to be tested were first ground and sieved through a sieve with apertures of 0.1 mm; in each case 0.5 g of powder was used. Dielectric measurements were to be made on aluminium oxide, silica gel and aluminium silicate catalyst under three conditions: air dried; dried at 110°C for four hours; fired at 425°C for four hours. In the present work the absolute permittivities were not obtained for aluminium oxide under any conditions or for silica gel

Card 2/3

Dielectric measurements ...

S/195/61/002/004/008/008  
E194/E555

and aluminium silicate in the air-dried condition. This is apparently because the specimens contained adsorbed water: some of this water was of a zeolitic character, because both drying and later firing reduced  $\Delta\epsilon$ , particularly when the powders were immersed in dichlorethane. For specimens of silica gel and aluminium silicate dried at  $110^{\circ}\text{C}$  the values of  $\epsilon$  were respectively  $13.2 \pm 0.1$  and  $9.2 \pm 0.1$  and corresponding values for samples fired at  $450^{\circ}\text{C}$  were  $8.9 \pm 0.1$  and  $8.7 \pm 0.1$ . The reduction is presumably due to water being driven off. There are 5 figures and 10 references: 3 Soviet and 7 non-Soviet. The English-language references read as follows: Ref.6 (quoted in text), Ref.8: A. Maryott, E.Smith, Table of Dielectric Constants of Pure Liquids, U.S.Natl.Bur.of Stand., Circ., 514, 1951.

ASSOCIATION: L'vovskiy politekhnicheskii institut, Kafedra tekhnologii nefi i gaza (L'vov Polytechnical Institute, Department of Petroleum and Gas Technology)

SUBMITTED: February 1, 1961

Card 5/

KORNILOV, A.N.; ZAYKIN, I.D.; MARTYNOV, Yu.A.; SKURATOV, S.M.

Dosage of the electrical energy supplied to the calorimeter  
bomb for ignition of substances. Zhur. fiz. khim. 37 no.11:  
2606-2608 N'63. (MIRA 17:2)

1. Moskovskiy gosudarstvennyy universitet imeni Lomonosova.



SHARONOV, M.N.; ZAYKIN, I.D.

Dielectric measurements of surface-active agents. Part 1:  
Determination of the dielectric constant of aluminum oxide, silica  
gel, and an industrial aluminosilicate catalyst. Kin.i kat. 2  
no.4:581-583 JI-Ag '61. (MIRA 14:10)

1. L'vovskiy politekhnicheskoy institut, kafedra tekhnologii  
nefti i gaze.

(Catalysts--Electric properties)  
(Surface-active agents--Electric properties)

5(4)

SOV/78-4-6-4/44

AUTHORS:

Kolesov, V. P., Skuratov, S. M., Zaykin, I. D.

TITLE:

The Formation Enthalpy of Lithium Oxide (Ental'piya obrazovaniya okisi litiya)

PERIODICAL:

Zhurnal neorganicheskoy khimii, 1959, Vol 4, Nr 6, pp 1237-1240 (USSR)

ABSTRACT:

The enthalpy of the reaction of crystalline lithium oxide with water was calculated. Purest lithium oxide was used as initial material. The analysis results concerning the purity of lithium oxide are summarized in table 1. The calorimetric determinations were carried out with the apparatus mentioned in reference 6, the results are given in table 2. The reaction enthalpy of lithium oxide with water amounts to  $\Delta H = 31.41 \pm 0.08$  kcal/mol at  $20^\circ$ , and that of  $\text{Li}_2\text{O}$  to  $\Delta H = -142.8 \pm 0.3$  kcal/mol at  $25^\circ$ . There are 2 tables and 17 references, 3 of which are Soviet.

ASSOCIATION:

Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova (Moscow State University imeni M. V. Lomonosov). Termokhimi-cheskaya laboratoriya im. V. F. Luginina (Thermochemical Laboratory imeni V. F. Luginin)

SUBMITTED:

March 5, 1958

Card 1/1

USSR / Human and Animal Morphology (Normal and  
Pathological). Cardio-Vascular System.  
The Heart.

S

Abs Jour : Ref. Zhur - Biologiya, No. 3, 1959, 12299

Author : Zaykin, M. D.

Inst : -

Title : On the Healing Processes of Myocardial Infarction.

Orig Pub : Klinich. meditsina, 1958, 36, No. 5, 103-110

Abstract : The hearts of 50 humans who died of myocardial  
infarction (MI) in the 50-70 year age group (34  
males and 16 females; in 16 cases, hypertension  
preceded the MI; in others, stenocardia) was  
studied. In 8 cases the dynamics of MI healing  
was followed histologically. 2 types of MI  
should be differentiated: acinous, which arises

Card 1/3

23

USSR / Human and Animal Morphology (Normal and Pathological). Cardio-Vascular System. The Heart.

8

Abs Jour : Ref. Zhur - Biologiya, No. 3, 1959, 12299

as the result of protracted coronary spasm (mostly muscle fibers are affected) and broad, which arise as a consequence of a thrombosis of one of the large branches of coronary vessels (broad necrosis of muscle fibers as well as of interstitial tissues of the blood vessels). Healing of MI of the first type occurs after 5-6 weeks; granulation tissue forms simultaneously on the entire area of necrotic regions and the scar forms uniformly. The healing of broad MI occurs after 2 $\frac{1}{2}$ -4 months and depends on the age, spread of the necrosis, the degree of sclerosis of coronary arteries and the functional condition of the heart muscle; granulation tissue does not

Card 2/3

USSR / Human and Animal Morphology (Normal and  
Pathological). Cardio-Vascular System.  
The Heart.

S

Abs Jour : Ref. Zhur - Biologiya, No. 3, 1959, 12299

form simultaneously; it appears at first in  
the peripheral part of MI with the least degree  
of necrosis.

Card 3/3

24

L 44567-66 EWT(1' SCTB DD

ACC NR: AP6030593 (A) SOURCE CODE: UR/0413/66/000/016/0076/0076

INVENTOR: Maklyukov, M. I.; Kalashnikov, V. P.; Zaykin, M. G.;  
Baburin, V. A.; Gavrikov, Yu. N.; Utyamyshev, R. I.

36  
B

ORG: none

TITLE: Multichannel device for recording human physiological functions.  
 Class 30, No. 185005

SOURCE: Izobreteniya, promyshlennyye obraztsey, tovarnyye znaki, no. 16,  
 1966, 76

TOPIC TAGS: human physiology, body temperature, skin galvanic reaction,  
 respiratory system, biometrics, biotelemetry

ABSTRACT: An Author Certificate has been issued for a device used to  
record human physiological functions. Its components include amplifiers  
 of biopotentials, high- and low-frequency filters, a body and skin tem-  
 perature monitor, a circuit recording respiratory rate and respiratory  
 movements of the thorax, a circuit measuring skin galvanic reactions,  
 and a stabilized power source. Increased operating reliability and  
 accuracy of several simultaneous measurements are achieved by sup-  
 pressing synphased interference and by assuring necessary signal ampli-  
 fication using cascaded low-frequency amplifiers. Some signals are fed

Card 1/2

UDC: 615.471:612.2:621.38

L 44567-66

ACC NR: AP6030593

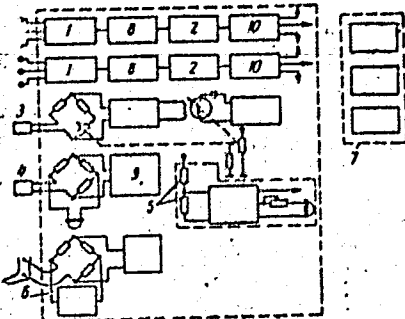


Fig. 1. Device for recording human physiological functions

1 - Amplifiers of biopotentials; 2 - high- and low-frequency filters; 3 - body temperature monitor; 4 - skin temperature monitor; 5 - circuit recording respiratory rate and thoracic movements; 6 - circuit recording skin galvanic reactions; 7 - stabilized power source; 8 - low-frequency amplifiers; 9 - transformer; 10 - output stages.

to bridges, in which the arms are automatically balanced by controlling each arm using a tube grid connected via resistance to the cathode. A variation of the above is distinguished by the fact that the temperature measurement bridge is fed by a synchro. A second variation is designed to record incoming signals from measurement channels via telemetry, and uses various types of oscillographs. It contains output stages with current and voltage switches. A general diagram of the system is given in Fig. 1. Orig. art. has: 1 figure. [CD]

SUB CODE: 06/ SUBM DATE: 28Jan65/ ATD PRESS: 5079

Cord 2/2 *LM*

ZAYKIN, M.N., kand.tekhn.nauk

Development of industrial transportation and objectives of research.  
Bul.tekh.-ekon.inform.Gos.nauch.-issl.inst.nauch. i tekhn.inform.  
no.7:67-71 '62. (MIRA 15:7)  
(Transportation) (Research, Industrial)



ZAYKIN, M.N.

Advanced experience of automotive transportation units. Biul.  
tekh.-ekon. inform. no. 4:76-78 '61. (MIRA 14:5)  
(Transportation, Automotive)

ZAYKIN, N. P.

Dressing of Riddersk ores Moskva, TSvetmetizdat, 1933. 59 p. (50-43097)

TN86.K39Z3

Zhizn' [P. 1]

FRAYERMAN, Ruvim Isayevich; ZAYKIN, Pavel Dmitriyevich; BOGINA, A.V.,  
redaktor; SRIBNIS, N.V., tekhnicheskij redaktor

[Life and unusual adventures of Lieutenant Commander Golovnin,  
traveler and seafarer] Zhizn' i neobyknovennye priklucheniia kapitan-  
leitenanta Golovnina, puteshestvennika i morekhodtsa. Moskva, Voen.  
izd-vo M-va obor. SSSR, 1957. 543 p. (MIRA 10:6)  
(Golovnin, Vasilii Mikhailovich, 1776-1831)

ZAYKIN, Yekoy Khonovich, doktor tekhn. nauk; PURNIK, Mikhail  
Abramovich, inzh.; FILIN, A.G., red.

[Operational testing of the rolling stock of automotive  
transportation] Ekspluatatsionnye ispytaniia podvizhnogo  
sostava avtomobil'nogo transporta. Moskva, Transport,  
1965. 55 p. (MIRA 18:10)